U.S. EPA Strategic Information Plan

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Message from the US EPA Chief Information Officer

The U.S. EPA views environmental information as a strategic asset as we work to protect human health and the environment. Environmental information underlies all decisions made by EPA and our partners to achieve our missions. In addition, EPA strives to ensure that all parts of society - including communities, individuals, businesses, State and local governments, Tribal governments - have access to accurate information sufficient to effectively participate in managing human health and environmental risks.

Looking beyond today and charting the course for tomorrow is a challenge we all face. However, this draft document strives to capture our key information management goals for the next several years at a strategic level. It is important to note that this is a living document due in part to the ever-evolving realm of information technology and information management. However EPA's mission remains constant and our information resources and assets must meet the needs of every EPA decision-maker as we make further progress toward our mission.

This information strategic plan fully supports and enables the work articulated in the overall US EPA Strategic Plan for 2006-2011. Working in concert, these strategic documents set forth EPA's management agenda for the years to come. Information assets at EPA will only further our progress toward our mission.

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Introduction:

The U.S. Environmental Protection Agency (EPA) remains a leader in providing accurate, secure, comprehensive data to best inform local, regional, and national environmental decisions. The Agency, however, faces many challenges in managing its vast information resources to support its mission of protecting human health and the environment. Increasingly, EPA must address complex environmental problems that cut across media and geographic locations, requiring information that is integrated across its traditional media-oriented programs.

EPA must be responsive to growing public demands for easily accessible, integrated information on environmental conditions, and must take full advantage of advances in information technology (IT) to collect and exchange information with its partners and stakeholders. At the same time, the Agency must also be responsive to the compelling needs of homeland security, preparing for potential natural and man-made threats to the environment and public health, and to ensure EPA's information and computer resources are secured in a manner that meets the evolving information technology and unique business needs of our program offices, laboratories and regions.

The Role of Information at the U.S. EPA

The collection, use, and dissemination of information are integral to ensuring that EPA achieves its mission. Information about human health and the environment -- environmental characteristics; physical, chemical, and biological processes; and chemical and other pollutants -- underlies all environmental management and health protection decisions. The availability of and access to information, and robust analytical tools to understand it, are essential for assessing environmental and human health risks, designing appropriate and cost-effective policies and response strategies, and measuring environmental improvements. To these ends, EPA serves in various capacities with regarding to strategic information management:

EPA is a collector and generator of information: While most of our programs rely on states, tribes, or the private sector to collect and report information to EPA, there are some programs in which EPA collects its own information. One example is the Agency's enforcement and compliance program, under which EPA collects samples in the field or conducts onsite inspections, generating important information for cleanup and enforcement. We also conduct original, scientific research at headquarters, in regional offices, and at our research laboratories to investigate and better understand how our environment works, how humans react to chemical pollutants and other environmental contaminants,

and how to model our natural environment to assess the potential impact of environmental management activities.

EPA is a recipient of information: EPA statutory responsibilities to protect human health and safeguard the natural environment are described in the statutes that mandate and govern our programs. EPA manages those programs in concert with numerous other government and private sector partners. As Congress intended, each statute provides regulatory expectations including some information considerations and principles. Some statutes are more specific than others, but overall, each directs EPA and other agencies in how we regulate to protect human health and the environment.

Under these statutory authorities, other mandates or as part of voluntary programs, EPA receives a large amount of information from external parties including the private sector and federal facilities. Much of the environmental information submitted to EPA is processed and stored in Agency information management systems. While, we work to ensure and maximize the integrity of that information through a variety of mechanisms and policies, we have varying levels of regulatory controls over information developed or collected by outside parties. This information generally falls into one of four categories:

> **Information collected through contracts with EPA**. Examples of this information include studies and collection and analysis of data by parties that are under a contractual obligation with EPA. Since EPA is responsible for managing the work assigned to contractors, EPA has a relatively high degree of control over this information.
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> **Information collected through grants and cooperative agreements with EPA**. Examples of this information include scientific studies that are performed under research grants and data collected by state agencies or other grantees to assess regulatory compliance or environmental trends.
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> **Information submitted to EPA as part of a requirement under a statute, regulation, permit, order or other mandate**. Examples of this information include required test data for pesticides or chemicals, Toxics Release Inventory (TRI) submissions and compliance information submitted to EPA by states and the regulated community.
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> **Information voluntarily reported to EPA through permitting and technical assistance programs within the Agency, state environmental agencies, and business databases**. Examples of this information are site assessments submitted to EPA to justify facility permitting decisions or demonstrate environmental compliance of site-specific actions.

EPA is a user of information: Upon placement in our information management systems, information becomes available for use by many people and systems. EPA users may include program managers, information product developers, or automated financial tracking systems. Depending on the extent of public release, users may also include city planners, homeowners, teachers, engineers, or community activists, to name a few. To satisfy this broad spectrum of users, it is critical that we present information in an unbiased context with thorough documentation.

EPA is moving beyond routine administration of regulatory information and working in concert with states and other stakeholders to provide new information products that are responsive to individual, regional, and multi-jurisdictional users. Increasingly, information products are derived from information originally collected to support state or federal regulatory programs or management activities.

EPA is a conduit for information: Another major role that EPA plays in the management of information is as a provider of public access. Such access enables public involvement in how EPA achieves it mission. We provide electronic and physical access to a variety of information holdings. Some information distributed by EPA includes information collected through contracts; information collected through grants and cooperative agreements; information submitted to EPA as part of a requirement under a statute, regulation, permit, order, or other mandate; and information that is either voluntarily submitted to EPA in hopes of influencing a decision or that EPA obtains for use in developing a policy, regulatory, or other decision. In some cases, EPA serves as an important conduit for information generated by external parties such as in our library collections.

Through these various roles EPA has the ability to manage and strategically utilize information in ways to advance our mission to protect the environment and human health.

Our Vision:

To provide government and citizens with timely, secure, relevant, and integrated information to protect human health and the environment.

Governing Principles:

EPA is committed to being effective stewards of our environment and of America's tax dollars. To provide the public with vital environmental results, we must operate as efficiently and effectively as possible. Accountability for results is a key principle of effective government, designed to make government citizen-centered, results-oriented, and market-based.

Our progress depends both on our ability and continued commitment to identify and use innovative tools, approaches, and solutions to address environmental problems and to engage extensively with our partners, stakeholders, and the public. Under each of our goals, we are working to promote a sense of environmental stewardship and a shared responsibility for addressing today's challenges.

EPA needs the best scientific information available to anticipate potential environmental threats, evaluate risks, identify solutions, and develop protective standards. Sound science helps us ask the right questions, assess information, and characterize problems clearly to inform Agency decision makers.

EPA has built this Information Strategic Plan on several governing principles including:

I. Information is a strategic asset: Information and IT are essential in carrying out EPA's mission of protecting human health and the environment. The Agency's success depends on the availability of and access to high-quality, timely, and reliable information. This information is needed to:

- develop environmental quality standards;
- promulgate environmental regulations;
- issue permits and monitor compliance;
- track environmental conditions and trends; and
- assess programmatic performance.

In order to maintain and enhance the value of its information resources, EPA must continually improve information and data quality, implement data standards, enhance the compatibility of information systems, and identify and fill major data gaps. At the same time, EPA must stay abreast of new technologies and invest in technologies that can best support the Agency's business processes and changing information needs.

***II. Information is key to support all areas of EPA's Strategic Plan (2006-2011)*:** Based on the preliminary work EPA did to prepare EPA's *Draft Report on the Environment—2003*, the Agency is developing and using a suite of scientifically sound indicators to track trends in environmental conditions and environmental influences on human health. This indicator information, which has been presented our *Report on the Environment Technical Document and Highlights of National Trends* (released for peer review in 2007), provides a snapshot of current environmental conditions and a baseline against which EPA can measure our accomplishments.

EPA's environmental indicators work is critical to the Agency's overall strategic planning. Indicator information has guided us in establishing our 2006-2011 strategic goals, objectives, sub-objectives, and associated strategic targets, which define the measurable environmental results we are trying to achieve. Information on trends in environmental conditions and human health will also help us identify key environmental concerns and emerging issues and assess the effect of federal, state, local, tribal, and private efforts in improving environmental quality. We will continue to use environmental indicator information and our *Report on the Environment* to determine critical data needs for future strategic planning.

***III. EPA strives to attract and retain a high performance IT workforce*:** EPA has designed our Human Capital Strategy to ensure that our workforce is high-performing, results-oriented, aligned with our strategic goals and objectives, and accountable for delivering environmental results. Toward this end, we have identified the skills needed for future work while continuing to attract and retain diverse talent, provide continuing opportunities for organizational learning, develop leaders, and ensure adequate succession planning.

***IV. EPA should continually optimize its information resources and investments*:** EPA must optimize its information resources more effectively in order to:

- address both single-media and cross-media environmental problems;
- meet growing public demands for timely, high-quality information;
- provide greater accountability for the Agency's performance and results; and
- support homeland security and fully integrated e-government.

Advances in IT and the expansion of the Internet provide new opportunities to collect, analyze, and integrate information and deliver timely, meaningful information to EPA's partners, stakeholders, and the public. These IT advances may also help EPA reduce the information collection and reporting burden it imposes on states and the regulated community. EPA must work closely with its state and Tribal partners, other federal agencies, and stakeholders to ensure that the Agency's business processes and IT infrastructure produce more capable, streamlined, or more efficient operations to support EPA's business functions.

***V. IT/IM solutions should align with EPA program and regional business processes*:** EPA's information systems ensure that we and our federal, state, tribal, and local agency partners have the accurate, timely information we need to make sound decisions. To make environmental information readily accessible, our computer network connects EPA with states and tribes, standardizes our computer systems, implements data standards, and institutes a variety of streamlining efforts.

EPA continues to identify information technology and information management challenges and to address them as effectively and cost efficiently as possible. EPA will continue to focus on four major areas:

- *Analytical Capacity.* We will continue to convert raw environmental data into information that decision makers can use more easily and synthesize state, regional and national information into strategic tools available locally to strengthen environmental decision making. For example, our geospatial work is converting millions of pieces of data into maps which are publicly available on the internet, handheld devices, and within libraries and databases.
- *Governance*. We will harness technology and assistive tools to ensure that the data EPA collects are of appropriate quality and design, that the data will serve many users, and that we minimize system overlaps to avoid data conflict and reduce costs.
- *Excellence in Information Service Delivery.* EPA will use the latest technology to streamline information management and link data partners to make information more accessible to all.
- *Innovation in Information Management.* Through electronic government (E-Gov) efforts, we will continue to substantively improve the way citizens interact with government, offering access to effective tools, like increased internet access and EPA's supercomputing capability, to better address homeland security and geographically based environmental needs.

***VI. EPA should adopt and share best IT/IM management practices*:** EPA is pursuing a number of opportunities for leveraging electronic tools and capabilities to provide one-stop access to services and transactions, reduce duplication in collecting information, and provide transparent, timely, on-line data. Whether for improving electronic processing and streamlining flows of the Toxics Release

Inventory data, or developing new geospatial tools for analyzing environmental data, our E-Gov work is making current data more accessible to EPA managers and stakeholders.

EPA is participating federal E-Gov initiatives. As the "managing partner" for the E-Rulemaking initiative, we are coordinating the efforts of other agencies to redesign the rulemaking process. E-Rulemaking uses the internet to make the rulemaking process more accessible to interested parties. While federal rulemaking was once a paper-based process, E Rulemaking now offers one-stop access and user services such as text and document search capabilities and the ability for the public to submit comments electronically. EPA's system serves as a template to improve existing E-Docket systems and is replacing duplicative systems in many federal agencies.

As a leader in E-Gov, we are helping to simplify and unify common work processes across federal agencies and within EPA. We will continue applying new principles and methods to achieve better results, improve customer service, and provide greater savings to the American people.

***VII. Collaboration with partners and stakeholders is essential*:** EPA's ability to protect human health and the environment depends on strong collaboration with the Agency's partners and stakeholders.

State and Tribal agencies:

- collect much of the data that EPA uses;
- play a key role in implementing programs and monitoring compliance;
- help disseminate environmental information;
- provide important scientific and technical expertise in identifying and addressing emerging environmental problems.

Federal partners:

- collect complementary information;
- implement a range of related environmental statutes; and
- require information from multiple sources to support better decision-making.

EPA must continue to strengthen its partnerships to ensure that the data it collects, uses, and disseminates are accurate, reliable, and available when needed. Collaboration will continue to be a key in carrying out the Agency's mission and realizing its information vision.

Together with our vision for information at EPA, these governing principles provided the framework for ensuring the Agency is positions to meet our information challenges.

Our Goals:

EPA has established five over-arching goals to address the information challenges:

1	Improve the collection, exchange, and use of high-quality environmental information to support decision-making activity and results-based management
2	Strengthen EPA's information infrastructure to improve Agency operations and security, including Homeland Security
3	Enhance greater access through discovery and wider availability of useful and understandable information
4	Adopt resource efficient enterprise-wide approaches to make and implement information management decisions
5	Invest in our people/human capital

Together these goals and the accompanying objectives will guide the way in which EPA collects, secures, manages, analyzes, disseminates, and invests in information. With continuing support from senior leadership and in continued collaboration with our regulatory partners and others, EPA will succeed in fulfilling its vision for information management and transform how the Agency and its partners protect human health and the environment.

Goal 1:

Improve the collection, exchange, and use of high-quality environmental information to support decision-making activity and results based management

EPA must ensure information is available to:

- meet statutory responsibilities;
- measure environmental performance,
- make well-informed environmental decisions; and
- communicate to the public about environmental and human health topics

The Agency must continue to engage its partners and stakeholders in determining what information is needed, to eliminate any unnecessary redundancies in data collection and to fill any critical data gaps. Since so many of EPA's responsibilities are delegated to the states, any efforts the Agency pursues to fill data gaps must be carefully planned and coordinated with state and federal partners. At the same time, the Agency must ensure that no unnecessary data collection requirements are imposed on states, tribes, or the regulated community, and must continue working to reduce the Agency's overall information collection and reporting burden. In addition to collecting or accessing the right type of data and information, EPA must enhance its ability to integrate and interpret its scientific and other data to support performance-based management and multimedia approaches to protecting the environment.

The demand for high-quality, integrated information is greater than ever before. The public has an interest in obtaining easy-to understand health and environmental information, and the EPA and its partners have a mandate to address complex environmental problems. In addition, EPA recognizes that information can add value and that using information effectively can be a key strategy for environmental protection. Using information in ways that can cause changes in behavior can supplement our regulatory and enforcement approaches to environmental protection. EPA must ensure that the data it collects, generates, and uses are accurate, representative, reliable, and rapidly available; and implement procedures for identifying and quickly correcting any errors that may occur.

The Agency must also recognize and build connections among the various types of environmental data to provide a comprehensive picture of environmental conditions or performance at the national, regional, state, tribal, or facility level. Geographic data, various environmental and health data, demographic/census

data, and data on other indicators of public health and environmental conditions are essential for supporting informed environmental decision making. Obtaining comparable and compatible data requires coordination between and among the program and Regional offices that are developing the monitoring and data collection efforts. These programs are delegated to regulatory partners or responded to by the regulated community, which can lead to important differences in implementation. It is essential to find ways to integrate and analyze environmental data at a variety of levels to understand the state of the nation's environment and to enlist the full support of EPA's partners and stakeholders in protecting and enhancing the environment.

Objectives:

1.1: Collaborate with government partners using the Exchange Network to improve data quality, ensure better data integration, and increase environmental data availability.

1.2: Expand use of technologies to enable fast, efficient, and more accurate environmental data submissions from state and local governments, industry and tribes to EPA.

1.3: Identify credible and informative environmental indicators to help answer key questions pertaining to the environment and human health.

1.4: Understand and improve what EPA knows about the current state of the environment and identify where additional information is needed.

1.5: Work across EPA to foster linkages between environmental indicators and Agency strategic planning, including data acquisition.

1.6: Ensure Information Quality and Sound Science through the implementation of EPA's national quality program including lab certification.

1.7: Foster performance and results-based management with Quarterly Management Reports (QMRs) and Ecostat – an interactive tool providing direct access to EPA's environmental, programmatic, and financial data.

Goal 2:

Strengthen EPA's information infrastructure to improve Agency operations and security, including Homeland Security

A secure EPA information infrastructure is critical to EPA's ability to deliver the reliable, high quality data needed to accomplish its mission of protecting human health and the environment. In particular, this work includes ensuring sound infrastructure in all EPA facilities to ensure communication not only during routine work but also in times of national emergencies. This infrastructure includes the needed wiring and technology for Agency facilities and workstations, and provisioning EPA employees with the appropriate electronic equipment to do their jobs - including laptop computers, blackberries, cell phones, security tokens, and more. EPA also must also ensure that Agency emergency response staff have appropriate access to analytical tools they need and efficient processes for data collection, retrieval, and storage during national emergencies.

Cybersecurity is a daily challenge - securing our networks from "worms" and "viruses" is critical to keeping the infrastructure up and available and to ensure that our data are not compromised. New security challenges require implementation of complex technical solutions.

Beyond these internet-related attacks on our infrastructure, EPA needs to remain vigilant in the protection of personally identifiable information (e.g., SSNs and birth dates). In this era of information technology and ease of sharing data through computers, we need to take extra precautions to protect Personally Identifiable Information (PII) of others and our own.

Our challenge is to maintain EPA's information and computer resources secure in a manner that meets the unique business needs of our program offices, laboratories and regions. We must be aggressive in guarding against security threats by integrating security into our daily business operations.

Objectives:

2.1: Ensure a secure network environment by performing upgrades and protecting EPA infrastructure and the appropriate use of equipment.

2.2: Remain vigilant to ensure the security of Personally Identifiable Information (PII).

2.3: Ensure continuity of operations for IT Systems and infrastructure in the event of a natural or man-made disaster impacting EPA's physical or virtual locations

2.4: Establish infrastructure capacity which will allow for a highly mobile EPA workforce which is able and empowered to work from any location or in a dispersed organization in the event of a pandemic, transportation, or safety incident

2.5: Build a standard suite of geospatial tools and data access for first-responders and on-scene decision makers to improve time-sensitive, broad-based environmental decisions

Goal 3:

Enhance greater access through discovery and wider availability of useful and understandable information

EPA works every day to expand the public's understanding of their environment by providing and facilitating access to a wealth of information about public health and local environmental issues and conditions. This enhances citizen understanding and involvement and provides people with tools to protect their families and their communities.

Technology has created new public demands on government to provide more information and services 24 hours a day, 7 days a week, and in a variety of formats (e.g., the Internet, facsimile, voicemail, toll-free phone lines, and print). In addition, there is an expectation that government business should be conducted electronically, not only with the public, but also within EPA, with our state and tribal partners, the regulated community, and with other federal, state, and local government agencies. EPA strives to remain at the forefront in implementing IT to transact government business, improve customer service, and provide transparent access to environmental information. The general public wants and expects the federal government to provide easy-to-use information and services electronically. To meet this demand, EPA will need to identify and set priorities among the various e-government services that it could potentially provide, and based on this assessment, develop innovative information systems and Web-based tools that meet public needs for meaningful environmental information.

Objectives:

3.1: Publish EPA Report on the Environment on the national state of air, water, land, ecosystems, and human health.

3.2: Provide access to community-based Toxics Release Inventory (TRI) data via the TRI Explorer tool and web products.

3.3: Deliver thru Regulations.gov – the one access point for citizens to learn about and participate in federal actions (regulatory and non regulatory).

3.4: Continue investment to ensure network and system availability and reliability during normal operations and natural/man-made disasters

Goal 4:

Adopt resource efficient enterprise-wide approaches to make and implement information management decisions

The increasingly complex issues facing EPA today require better-integrated, cross-media approaches to environmental and public health protection. Such shifts from traditional single-media approaches will entail significant changes in how the Agency collects, analyzes, and uses information and require major cultural changes in how programs interact and relate to one another and to outside partners and stakeholders. The Agency as a whole maintains a wealth of environmental data. These data are not always consistent or easy to integrate across EPA programs. The result could be characterized as a collection of separate "stove-pipe" information systems. Adopting an enterprise-wide approach to information management will allow EPA to make key information, technology, and funding decisions at an Agency-wide level and improve the efficiency and effectiveness of its governance structure and operations. As EPA participates in other federal e-government projects, the Agency's enterprise approach must expand to include other federal agencies. Such an approach will also reduce burden on federal, state, and tribal partners, as well as improve the Agency's ability to centrally track the performance of its various information technology efforts.

Objectives:

4.1: Establish an enterprise content management system and digitization of library holdings to allow greater search capability and access of electronic documents.

4.2: Build authoritative registries of facility and geospatial data to support cross-media environmental decision-making.

4.3: Implement an Enterprise Architecture to leverage investments throughout the Agency.

4.4: Build and leverage enterprise solutions to promote data sharing and identify opportunities to re-use and re-deploy IT solutions.

4.5: Utilize digital technologies to transform government operations in order to improve effectiveness, efficiency, and service delivery.

Goal 5:

Invest in our people/human capital

As with other public and private sector organizations, EPA faces continual challenges in recruiting and retaining employees with appropriate skills in data analysis and information technology. It is particularly difficult to hire employees with advanced technology skills who are instead drawn to the private sector by higher salaries and rapid advancement opportunities.

EPA will:

- identify the skills it needs to accomplish the Agency's strategic goals and objectives;
- ensure that its workforce is diverse and appropriately trained; and
- work to retain good employees.

This involves hiring, training, and retaining employees who are skilled in data analysis, information management, and computer science (from network configuration and maintenance, to information security, to Web design and management). EPA will also offer continuing education opportunities to help employees stay abreast of cutting-edge technologies, provide career enhancement opportunities, and initiate programs to foster high employee morale and productivity.

Objectives:

5.1: Identify and align needed competencies to required roles and responsibilities to attract and retain a strong IT workforce

5.2: Use online IT and IM training to ensure EPA employees and our partners are prepared for current and future technology enhancements and eGov improvements

5.3: Enable strategic knowledge transfer and data sharing to maximize workforce effectiveness at the federal, state, tribal, and local levels.